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10/056,767

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Martin Feldtkeller

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12/16/2003

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EXAMINER

PHILOGENE, HAISSE

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/056,767

Applicant(s)

FELDTKELLER ET AL.

Examiner

Haissa Philogene

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 7-12 is/are rejected.
- 7) ☒ Claim(s) 2 and 4-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 7-10 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Sander et al., Patent No. 6,269,014.

As per claim 1, Sander discloses in Figs. 1 and 2 a half-bridge circuit, comprising: a first semiconductor body CH2 having a first MOS transistor T2 that is integrated in said first semiconductor body, said first MOS transistor being a vertically designed n-conducting MOS transistor; a second semiconductor body CH1 having a second MOS transistor T1 that is integrated in said second semiconductor body, said second MOS transistor being a vertically designed p-conducting MOS transistor; a drive circuit IC for driving said first MOS transistor and said second MOS transistor; a common connection plate TO to which said first MOS transistor and said second MOS transistor are applied; and a first connection terminal via UB and a second connection terminal via gnd; said first MOS transistor T2 and said second MOS transistor T1 being connected in series between said first connection terminal via UB and said second connection terminal via gnd.

Art Unit: 2821

As per claim 12, Sander discloses the claimed invention as presented above. Further, Sander discloses in Fig.1 a switching regulator having an operating voltage UB connected to half-bridge switching inverter (T1, T2) for supplying current to a load L.

As per claims 7 and 8, Sanders discloses in Fig.2 an inherent electrically conductive adhesive that bonds or solders said first semiconductor body CH2 and said second semiconductor body CH1 onto said common connection plate TO in order to attain electrical and thermal conductivity and connection (see Col.4, lines 26-32).

As per claim 9, Sanders discloses a third semiconductor body IC into which said drive circuit (Drive Circuit, see Fig.1) is integrated; said first semiconductor body CH1 having a front side; and said third semiconductor body IC being applied to said front side of said first semiconductor body CH1.

As per claim 10, Sanders discloses a common housing TO surrounding said first semiconductor body CH2, said second semiconductor body CH1, and said drive circuit IC.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sander et al. in view of Wilcox et al., Patent No. 5,481,178.

Art Unit: 2821

Sander discloses the claimed invention substantially as explained above except for a capacitor connected between said first load path connection of said first transistor and said first load path connection of said second transistor and said second transistor having a second load path connection. Wilcox discloses in Fig.1 a half-bridge circuit 15 in a switching regulator circuit 10 which has a load output circuit (30, 14) with a capacitor 34 connected between a first load path connection of a first transistor 16 via terminal 12 and a first load path connection of said second transistor 17 via ground and said second transistor 17 having a second load path connection via terminal 12 to load 14. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to employ the capacitor as taught by Wilcox into the Sander type circuit. This can be achieved by replacing the Sander's load L with Wilcox's load output circuit. Thus, it would ensure a smooth supply of current at a regulated voltage to the load, thereby improving the efficiency of the regulator circuit.

#### ***Allowable Subject Matter***

Claims 2 and 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

the prior art fails to disclose the following limitations: "said first MOS transistor has a first load path connection that are accessible at said front side of said first semiconductor body and a second load path connection that is accessible at said rear side of said first semiconductor body; said second MOS transistor has a first load path

Art Unit: 2821

connection that are accessible at said front side of said second semiconductor body;  
and a second load path connection that is accessible at said rear side of said second semiconductor body" (claim 2); and "said capacitor is applied to said first semiconductor body and to second semiconductor body; said capacitor has a first connection connected to said first semiconductor body; and said capacitor has a second connection connected to said second semiconductor body" (claim 4).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Johnson, Jr. et al., Patent No. 6,314,007.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Haissa Philogene whose telephone number is (703) 305-3485. The examiner can normally be reached on 6:30 A.M.-6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (703) 308-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

hp

Haissa Philogene  
Primary Examiner  
A.U. 2821  
